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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,241	07/21/2003	Tamer Kadous	020192C1	7570
23696	7590	10/24/2005	EXAMINER	
QUALCOMM, INC 5775 MOREHOUSE DR. SAN DIEGO, CA 92121			BAYARD, EMMANUEL	
			ART UNIT	PAPER NUMBER
			2638	

DATE MAILED: 10/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/624,241

Applicant(s)

KADOUS, TAMER

Examiner

Emmanuel Bayard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 47-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 47-66 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

### DETAILED ACTION

This is in response to amendments filed on 8/11/05 in which claims 34-46 are canceled and claims 47-66 are pending. The applicant's amendments have been fully considered but they are moot based on the new ground of rejection therefore this case is made final.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 47-51 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhuang et al U.S. Pub No 20030112745.

As per claim 47, Zhuang et al teaches a wireless communication device comprising: a plurality of antennas configured to receive a plurality of symbol streams (see fig.3 elements 340 and pages 2-3, paragraphs [0025-0026]; a first processor configured to process the plurality of received symbol stream and to provide a plurality of detected symbol stream one detected data stream for each stage of the successive interference cancellation processing (see fig.3 element 328 and pages 2-3, paragraph [0025, 0028, 0030]; a second processor (see fig.3 element 330) configured to process each detected symbol stream to provide a corresponding decoded (see fig.3 element

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325) data stream and to compute metrics is the same as the claimed (determined a received signal-to-noise and interference ratio (SNR) and an effective SNR for each of the plurality of data streams based on the received SNR) (see figs.3-4 elements 305, 460 and pages 3-4, paragraph [0025-0034, 0038]). Note it is well known in the art the metric of a signal is defined to determine the signal strength or signal quality which is based on signal to noise ratio. Therefore the metric computation of Zhuang is the same as the claimed (determined a received signal-to-noise and interference ratio (SNR) and an effective SNR for each of the plurality of data streams based on the received SNR).

As per claim 48, Zhuang teaches different symbols having different and uncorrelated sub carriers and unequal bandwidth (see page 2, paragraph [0017]) therefore the teaching wherein at least two data rates of at least two of the plurality of received symbol streams are unequal is inherently taught by Zhuang.

As per claim 49, Zhuang et al teaches a comparison process by the second processor (see page 4, paragraph [0035]) therefore the teaching of comparing a required SNR for each symbol stream against the effective SNR for the symbol stream and to determine whether or not a rate for each symbol stream is supported based on the comparison is inherently taught by Zhuang.

As per claim 50, Zhuang et al Inherently teaches the required SNR is a minimum SNR for a communication system.

As per claim 51, Zhuang et al Inherently teaches first and second processor comprise a single integrated processor.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 52-66 are rejected under 35 U.S.C. 102(b) as being anticipated by Van Nee U.S. Patent No 6,175,550 B1.

As per claims 52 and 61, Van Nee teaches a method for determining data rates for a plurality of data streams to be transmitted via a plurality of transmission channels comprising: determining a required channel state information parameter for each of a plurality of data rates that may be used for the plurality of data streams, wherein at least two of the data rates are unequal (see fig.1 element 15 and col.4, lines 5-15 and col.5, lines 58-67 and col.7, lines 35-40 and col.8, lines 11-19); comparing the required channel state information parameter for each data stream against information indicative of the channel state information parameter for each data stream (see col.7, lines 50-67); and determining whether or not some of the plurality of data rate of are supported based on comparing (see col.7, lines 50-67). Note that since element 15 Van nee increases or decreases the date rate based on a quality signal received from an external setting or s receiver feedback therefore the comparing process as described in the claimed is clearly taught by Van Nee.

As per claims 53 and 62, Van Nee teaches a required SNR (see abstract).

As per claim 54, Van Nee teaches wherein the effective SNR for each data stream is further determined based on a received SNR indicative of an operating condition of the plurality of transmission channels (see figs. 1,4 and col.7, lines 50-67 and col.8, lines 1-19).

As per claim 55, Van Nee teaches wherein the received SNR is based on the required SNR (see abstract and col.7-col.8)

As per claim 56, Van Nee inherently teaches, wherein the plurality of data rates are deemed to be supported if the required SNR for each data rate is less than or equal to the effective SNR for the data rate.

As per claims 57 and 63, Van Nee inherently teaches evaluating a plurality of sets of data rates; and selecting a rate set for the plurality of data streams based upon a minimum value for the required channel state information parameter.

As per claims 58 and 64, Van Nee inherently teaches wherein the data rates in each set are selected to achieve a specified overall spectral efficiency.

As per claims 59 and 65, Van Nee inherently teaches wherein the some of the plurality of data rates comprises all of the data rates.

As per claims 60 and 66, Van Nee teaches multi users can transmit simultaneously using different set of carriers (see col.5, lines 65-67). Therefore the teaching of wherein the plurality of data stream are transmitted over a plurality of transmit antennas is inherently taught by Van Nee.

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Li U.S. Pub No 20040086055 teaches a pilot-aided channel estimation.

Jones et al U.S. Pub No 2003/0076878 A1 teaches a method and apparatus for line probe signal.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM)  
Alternate Friday off.

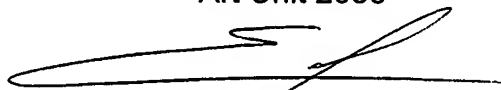
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vanderpuye Kenneth can be reached on 571 272 3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

10/20/05

Emmanuel Bayard  
Primary Examiner  
Art Unit 2638

  
**EMMANUEL BAYARD**  
**PRIMARY EXAMINER**